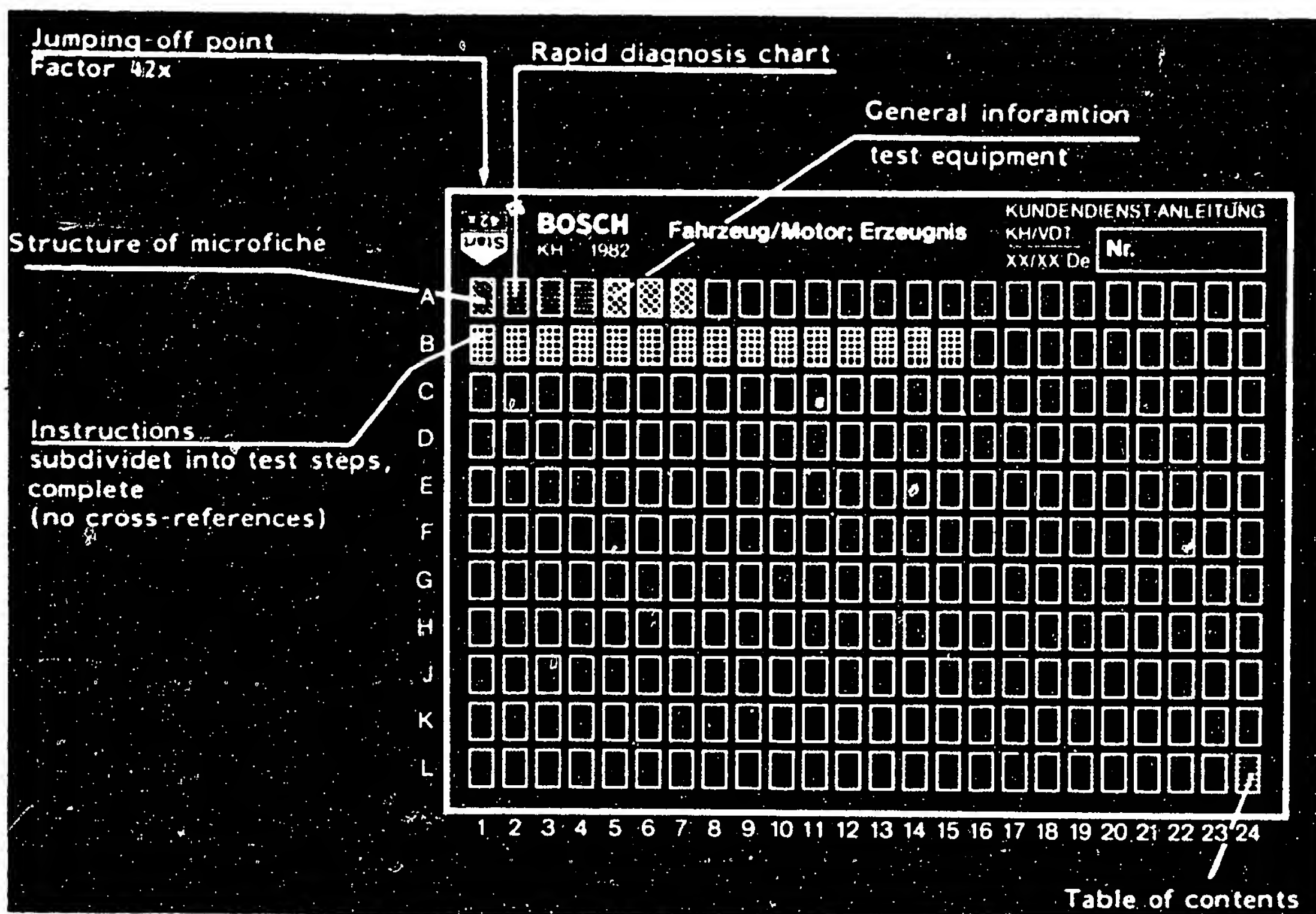


Structure of microfiche



1. Read from left to right

2. Title of microfiche (appears on each coordinate)

E 16	Product/assembly/test step	
	Vehicle/engine	

Coordinate

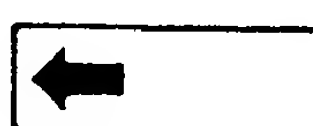
3. Limits of section



Beginning



Mid-section



End



One-page section

4. References to relevant test steps in test specifications; coordinate e.g. C6

C 6

A1

Testing and adjustment



1) Rapid diagnosis chart for headlight vertical aim control (LWR)

The following rapid diagnosis chart makes it possible for the experienced expert to check the LWR system with headlight aiming device 0 681 130 .. or 0 684 100 The contents of this chart are restricted to the following:

- Sequence of test steps
- Setting instructions and test specifications (readings on headlight aiming device)
- References to coordinates of the respective detailed testing and trouble-shooting program.

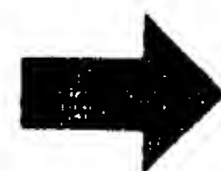
If detailed information and instructions are required, always proceed according to the test and adjustment section starting on Coordinate B 1.

Before testing, make sure of the following:

- Tyre pressures O.K.
- Vehicle ready for the road and unladen (in accordance with StVZO* § 42 Sect. 3)
- Lower beam switched on
- Headlight aiming device set up in accordance with operating instructions.






Tests and adjustment operations must always be carried out on both headlights.

* StVZO = FMVSS (in USA), CUR (in GB)



Rapid diagnosis chart for testing with headlight aiming device 0 681 130 .. or 0 684 100 ..

Always carry out tests on both headlights!

Test step	Set manual adjustment device on vehicle to:	Set headlight aiming device to:	Set headlight to:	Reading on headlight aiming device	Coordinates
1	Lock-in position 	0 681 130 ... : 13 cm inclination 0 684 100 ... : 0 cm inclination	Light/dark boundary		B 2
2	Left-hand stop 	Light/dark boundary		0 681 130 ... : between 56 and 69 cm 0 684 100 ... : between 43 and 56 cm	B 4
3	Lock-in position 	41 cm inclination	Light/dark boundary		B 8
4	Right-hand stop 	Light/dark boundary		between 10 and 21 cm	B 10
5	Lock-in position 	13 cm inclination	Light/dark boundary		B 14

General

Since the beginning of 1981 Saab-Scania commercial vehicles have been fitted as an optional extra with a hydromechanical headlight vertical aim control (LWR system).

The manual adjustment device is located in the instrument panel.

LWR system 0 307 550 907 is installed in Saab-Scania forward-control vehicles.

LWR system 0 307 550 917 is installed in Saab-Scania cab-behind-engine vehicles.

In order to check the LWR system, the headlamps must be adjusted in individual test steps since the adjustment possibilities on headlight aiming devices are not sufficient for the total adjustment range of the LWR system (upwards and downwards).

In test step 5 the basic setting of the headlights is carried out.

Note: The basic setting refers to the regulations in Germany.

In countries outside Germany the local regulations should be observed.

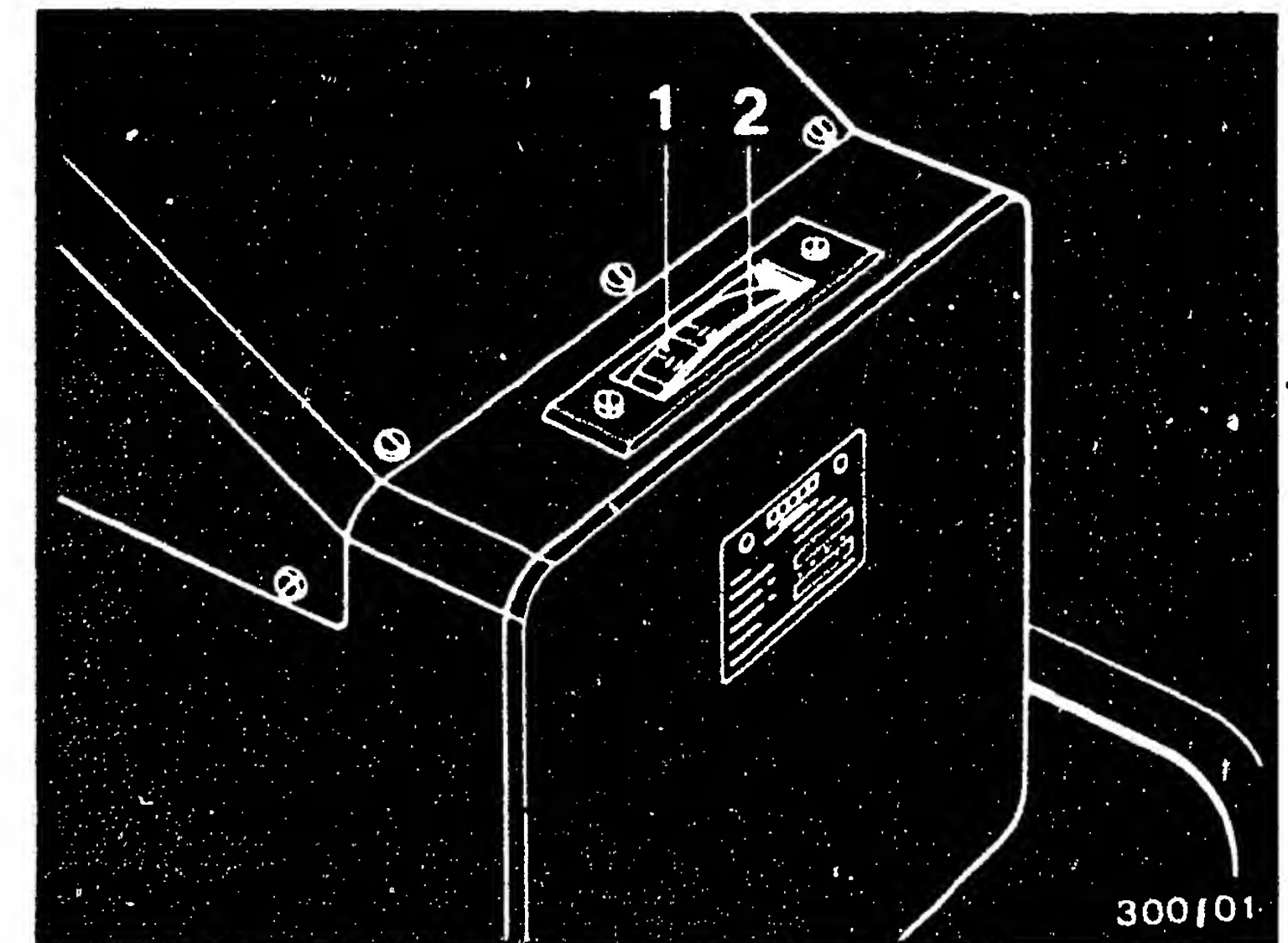


3. Test equipment

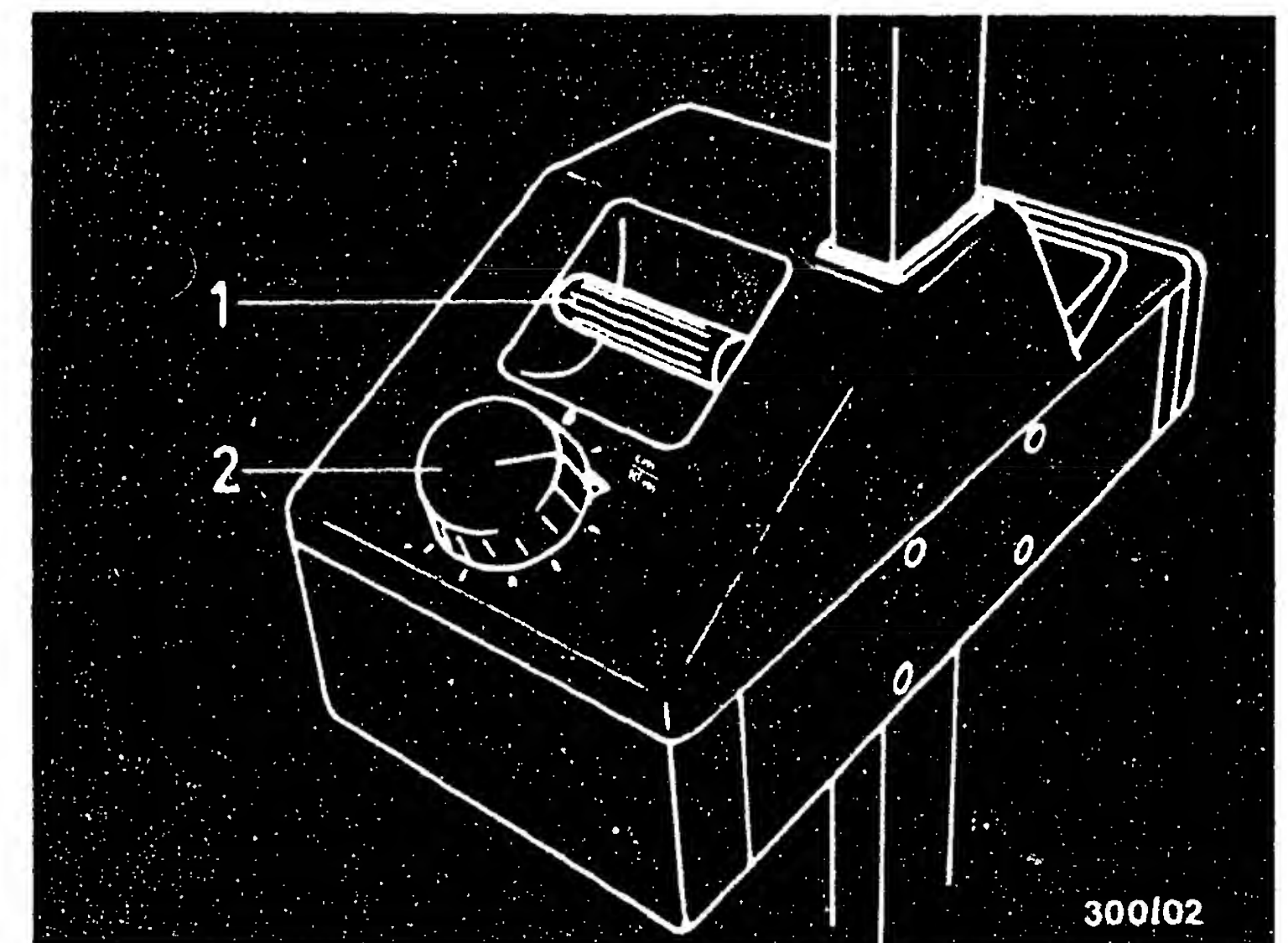
Headlight aiming device
or
Headlight aiming device

0 681 130 ... (top picture)

0 684 100 ... (bottom picture)



1. = Setting scale
2 = Knurled disk or rotary knob
for setting the inclination



A6

Test equipment
Saab Scania headlight vertical aim control



A7

Test equipment
Saab Scania headlight vertical aim control



4. Testing and repairing

Before testing the LWR system, make sure of the following:

- Tyre pressure O.K.
- Vehicle ready for the road and unladen (in accordance with StVZO* § 42 Sect. 3)
- Lower beam switched on
- Headlight aiming device set up in accordance with operating instructions

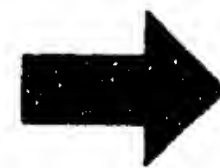
The tests and adjustment operations must be carried out on both headlamps.

Notes

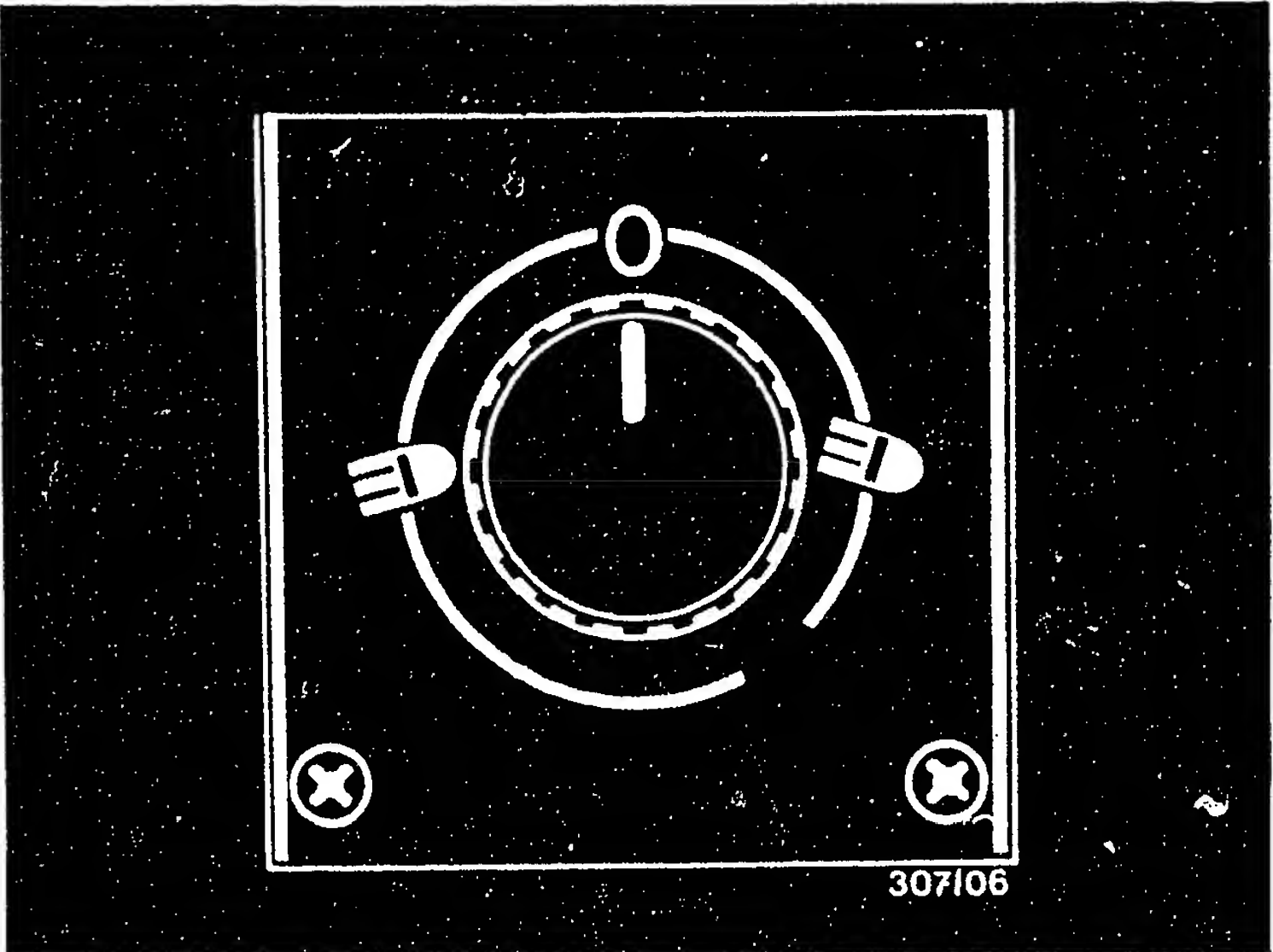
With the detailed testing and trouble-shooting starting on Coordinate B 1, go through the test steps one after the other.

Continue with the trouble-shooting given underneath the test steps only if there is a fault.

*StVZO = FMVSS (in USA), CUR (in GB)



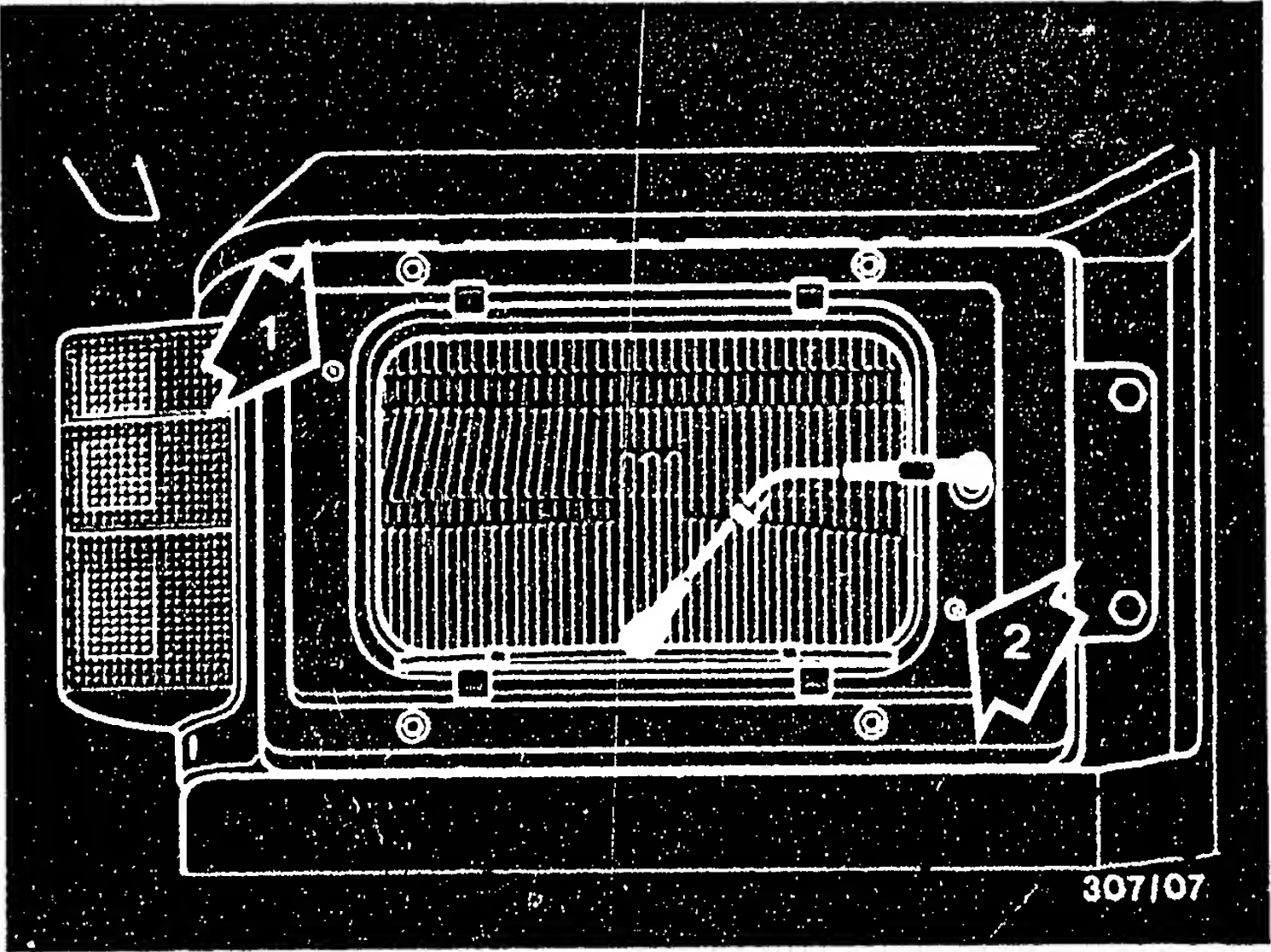
Test step 1		
Operation	Reading	Testing
<u>Measuring equipment:</u> Headlight aiming device 0 681 130 .. 0 684 100 ..	On headlight aiming device ---	<u>Component:</u> Headlamp
<u>Operation in vehicle:</u> Manual adjustment device to position (lock-in position - top illustration)		<u>Operation:</u> Correct adjustment
<u>Setting on headlight aiming device:</u> Set headlight aiming device 0 681 130 .. to 13 cm inclination 0 684 100 .. to 0 cm inclination		<u>Malfunction:</u> Headlamp not mechanically adjustable
<u>Operation in vehicle:</u> Set headlights to light/dark boundary (bottom illustration)		



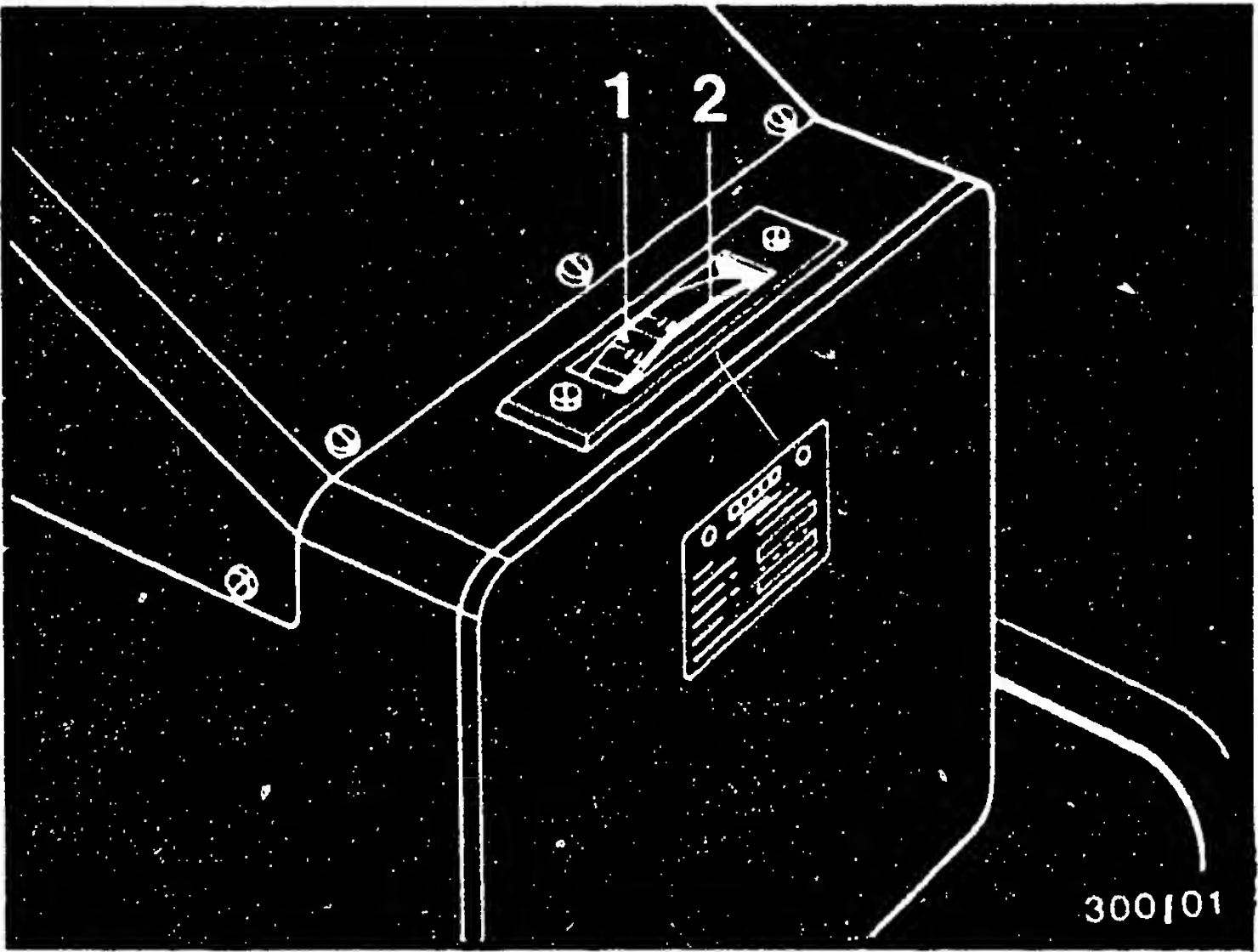
Manual adjustment device (located in instrument panel)

Adjusting screws on headlamp
1 = Horizontal adjustment
2 = Vertical adjustment

Headlamp not mechanically adjustable:
Check headlamp for damage and replace if necessary.



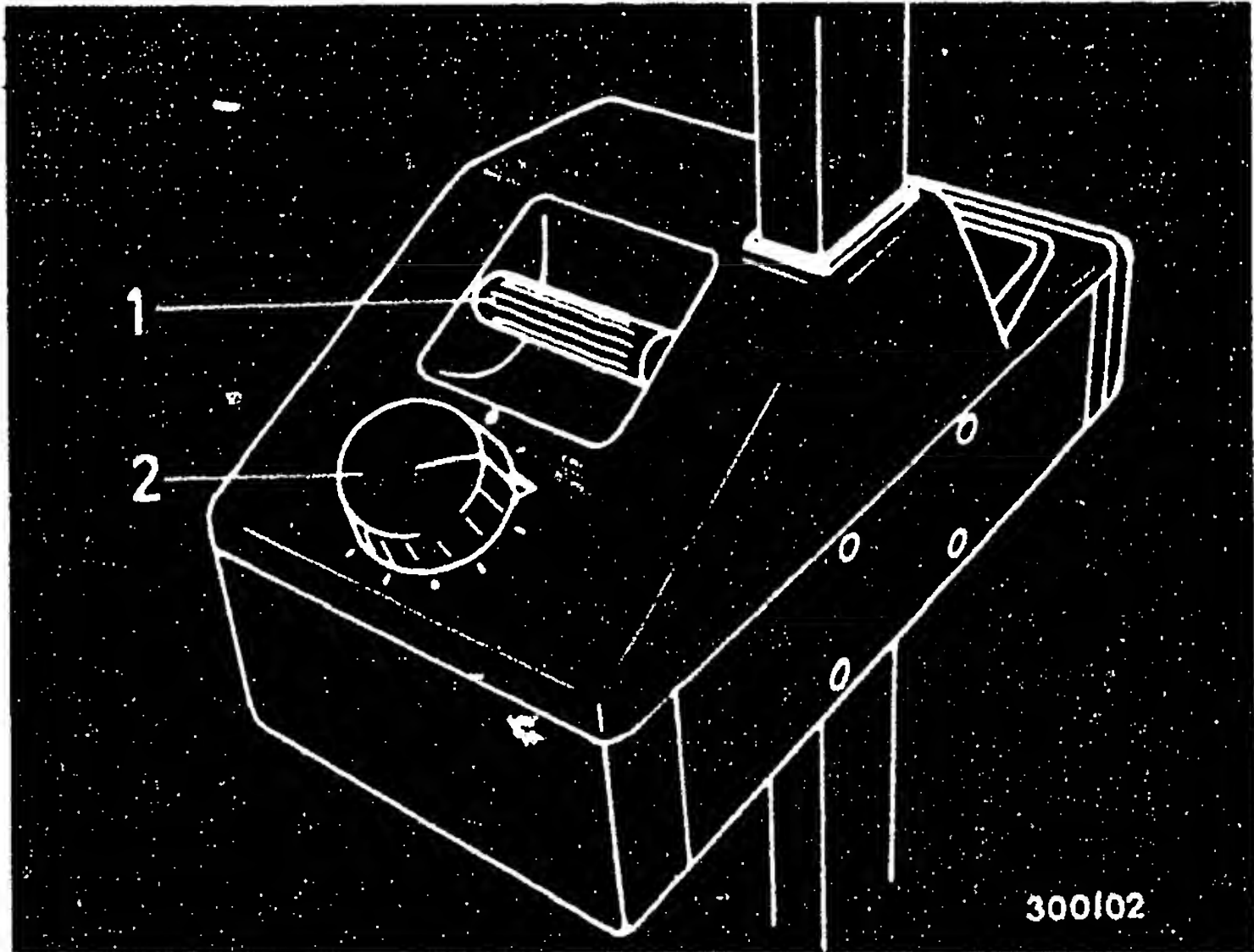
Test step 2		
Operation	Reading	Testing
<u>Measuring equipment:</u> Headlight aiming device 0 681 130 .. (top illustration) 0 684 100 .. (bottom illustration)	On headlight aiming device: Light/dark boundary on 0 681 130 .. between 56 and 69 cm inclination 0 684 100 .. between 43 and 56 cm inclination	<u>Component:</u> LWR system Downward adjustment
<u>Operation in vehicle:</u> Manual adjustment device to position (left-hand stop)		<u>Operation:</u> Adjustment range up/down
<u>Setting on headlight aiming device:</u> Set to light/dark boundary		<u>Malfunction:</u> Values not reached



Headlight adjustment only partially present

Check reflectors for freedom of movement. Test stroke of control elements.

Continued on B6/B7



Trouble-shooting if headlight adjustment only partially present:

1. Test reflectors for freedom of movement

To do this, pull out headlight unit. (Loosen fastening screws, top illustration, arrows). Force the retainer (2) (centre illustration) away from the control element (1) toward the reflector. Using a screwdriver, unhook the spacer pin (3) from the control element. The control element (1) is fastened on the holder by means of a bayonet lock. Move the reflector by hand and check for freedom of movement (must not stick).

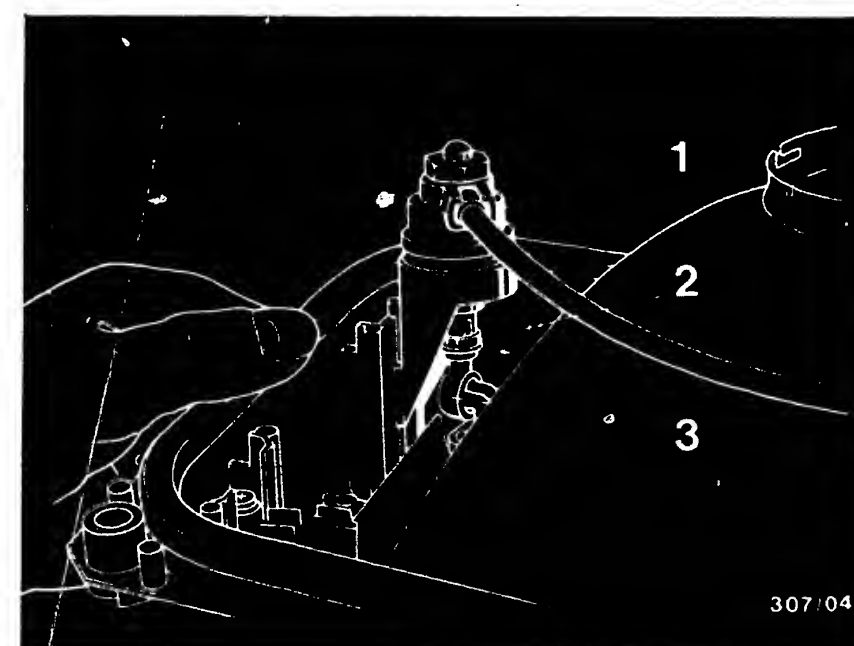
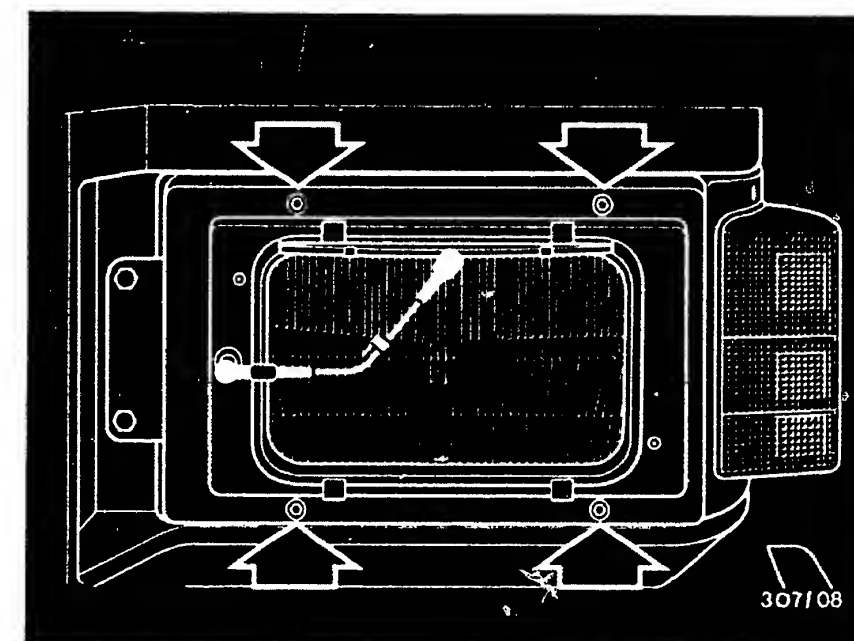
Test the stroke of the control elements (bottom illustration)

Set the rotary knob of the manual adjustment device to the "0" lock-in position. Using a caliper gauge, measure the piston projection. Turn the rotary knob as far as it will go to the left and measure the new piston projection. If the difference is less than 5.2 mm, the complete manual adjustment system must be replaced.

Return the rotary knob to the "0" lock-in position and measure the piston projection. Turn the rotary knob as far as it will go to the right and measure the new piston projection. If the difference is less than 2.5 mm, the complete manual adjustment system must be replaced.

Note:

Before re-installing the headlamps, fit the spacer pin retainer. If there is no adjustment at all on one or both headlamps, check whether the spacer pin (3) has locked in position in the headlamp holder or control element.

**B6**

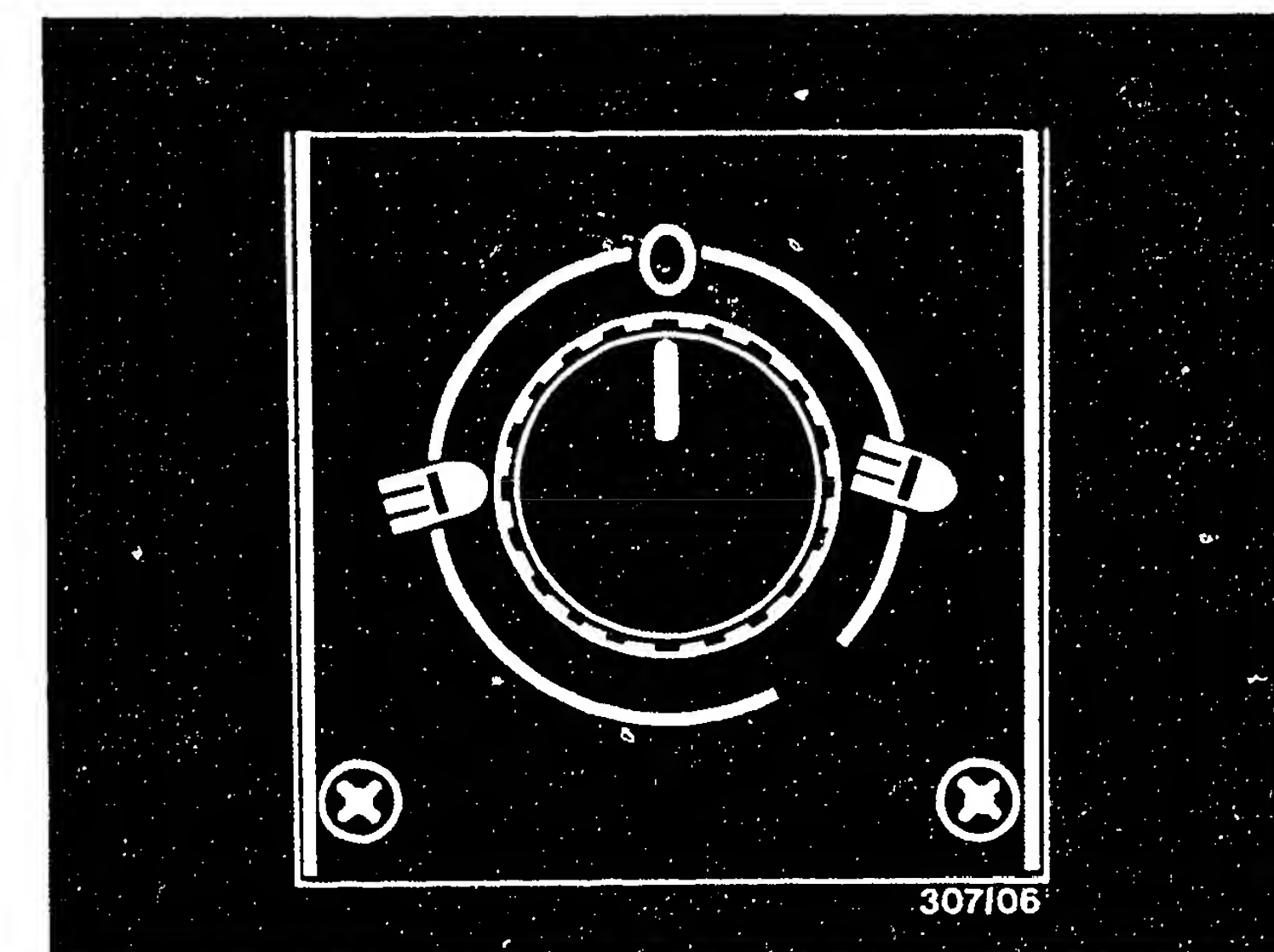
Testing and repair
Saab Scania headlight vertical aim control

**B7**

Testing and repair
Saab Scania headlight vertical aim control

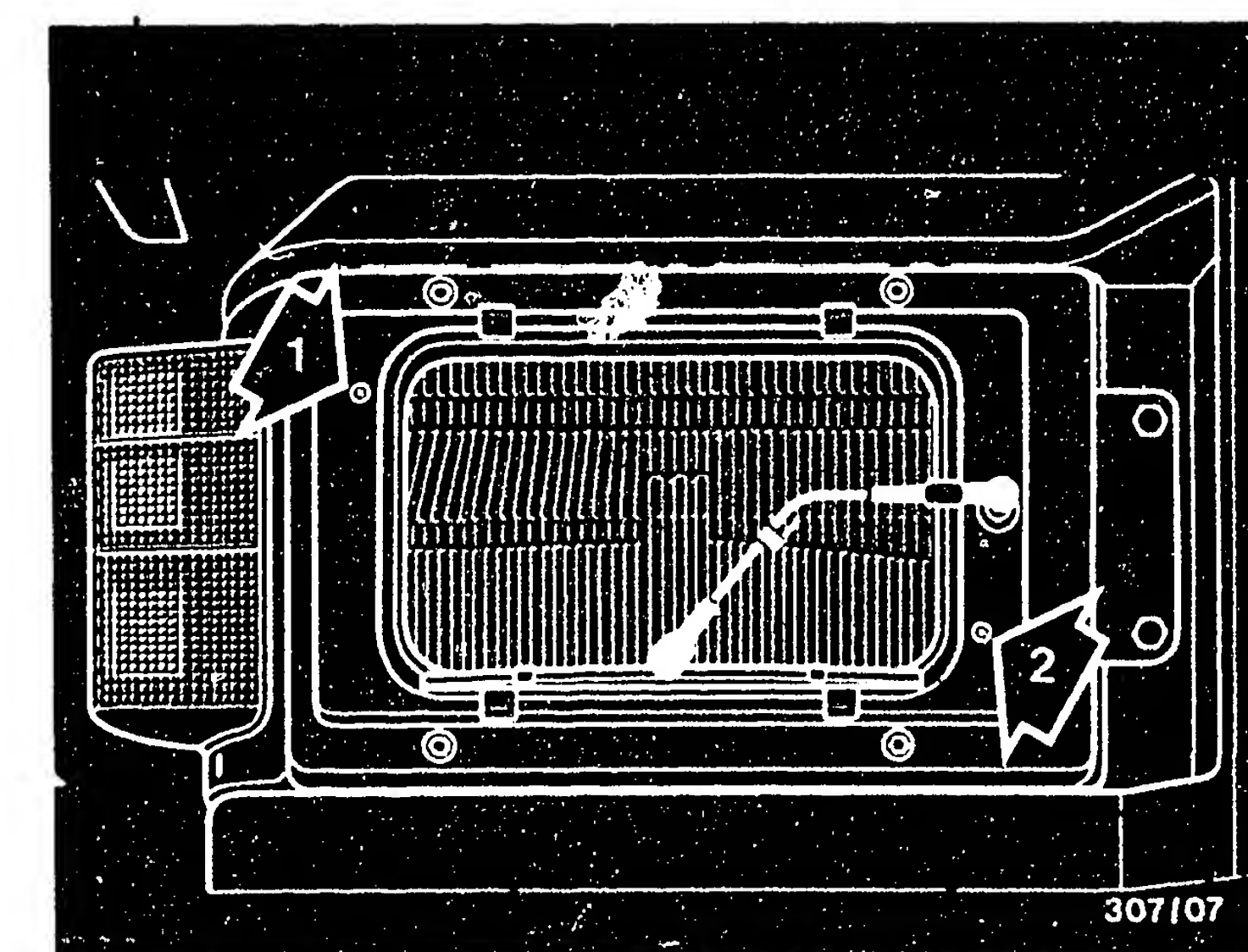


<u>Test step 3</u> <u>Operation</u> <u>Measuring equipment:</u> Headlight aiming device 0 681 130 .. 0 684 100 ..	Reading On headlight aiming device: Light/dark boundary with 41 cm inclination	Testing <u>Component:</u> Headlamp
<u>Operation in vehicle:</u> Manual adjustment device to position (lock-in position - top illustration)		<u>Operation:</u> Adjustment
<u>Setting on headlight aiming device:</u> Set to <u>1 cm</u> inclination		<u>Malfunction:</u> Headlamp not mechanically adjustable
<u>Operation in vehicle:</u> Set headlamp to light/dark boundary (bottom illustration)		



Manual adjustment device

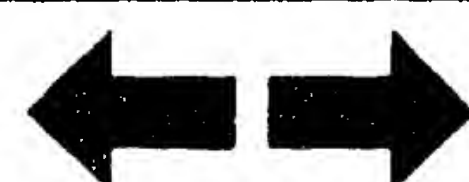
Adjusting screws on headlamp
1 = Horizontal adjustment
2 = Vertical adjustment



Headlamp not mechanically adjustable:
Check headlamp for damage and replace if necessary.

B8

Testing and repair
Saab Scania headlight vertical aim control



B9

Testing and repair
Saab Scania headlight vertical aim control



Test step 4		
Operation	Reading	Testing
<u>Measuring equipment:</u> Headlight aiming device 0 681 130 .. 0 684 100 ..	On headlight aiming device: Light/dark boundary between 10 and 21 cm inclination	<u>Component:</u> LWR system Upward adjustment
<u>Operation in vehicle:</u> Manual adjustment device to position (right-hand stop)		<u>Operation:</u> Adjustment range up/down
<u>Setting on headlight aiming device:</u> Set to light/dark boundary		<u>Malfunction:</u> Values not reached



Headlight adjustment only partially present

Test reflectors for freedom of movement. Test stroke of control elements.



Continued on B12/B13

B 10

Testing and repair

Saab Scania headlight vertical aim control



B 11

Testing and repair

Saab Scania headlight vertical aim control



Trouble-shooting if headlight adjustment only partially present:

1. Test reflectors for freedom of movement

To do this, pull out headlight unit. (Loosen fastening screws, top illustration, arrows). Force the retainer (2) (centre illustration) away from the control element (1) toward the reflector. Using a screwdriver, unhook the spacer pin (3) from the control element. The control element (1) is fastened on the holder by means of a bayonet lock. Move the reflector by hand and check for freedom of movement (must not stick).

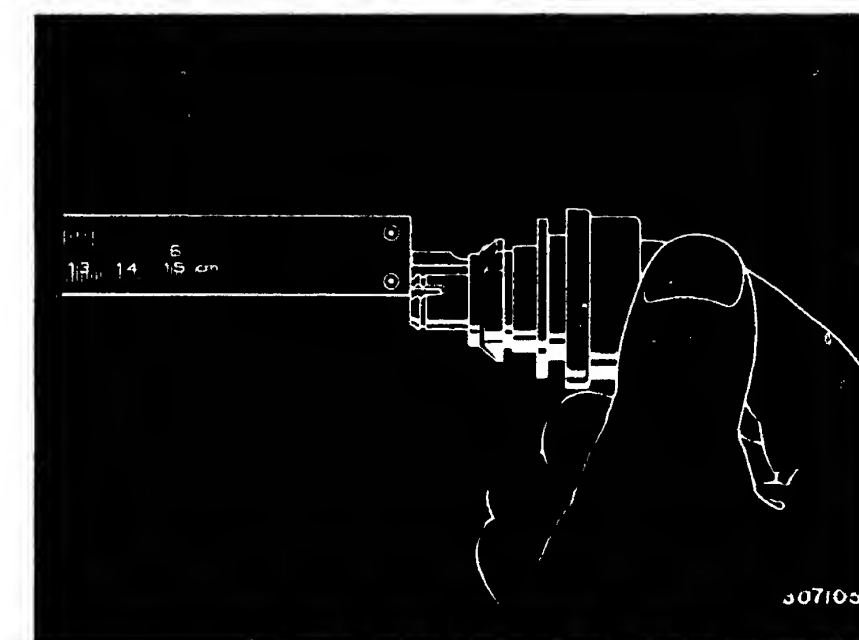
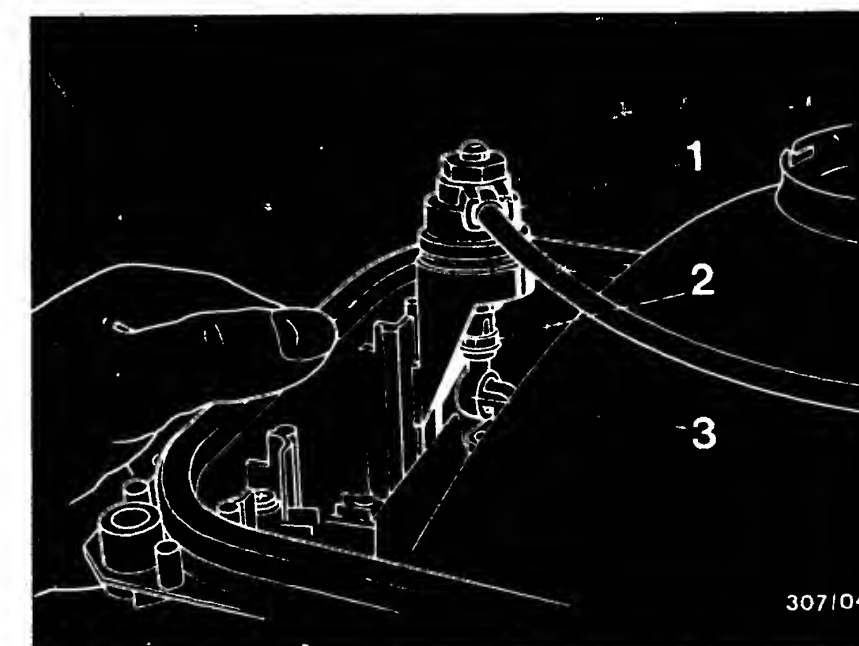
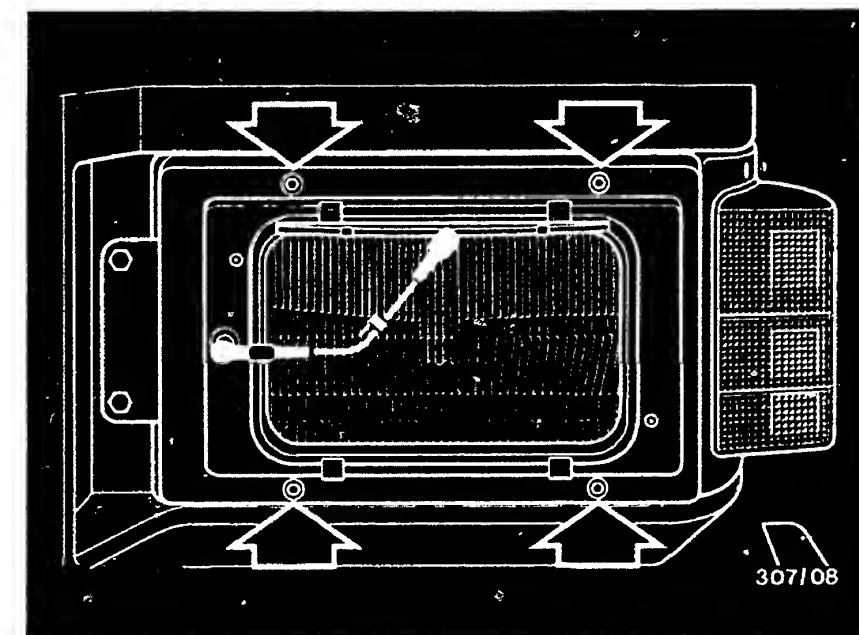
Test the stroke of the control elements (bottom illustration)

Set the rotary knob of the manual adjustment device to the "0" lock-in position. Using a caliper gauge, measure the piston projection. Turn the rotary knob as far as it will go to the left and measure the new piston projection. If the difference is less than 5.2 mm, the complete manual adjustment system must be replaced.

Return the rotary knob to the "0" lock-in position and measure the piston projection. Turn the rotary knob as far as it will go to the right and measure the new piston projection. If the difference is less than 2.5 mm, the complete manual adjustment system must be replaced.

Note:

Before re-installing the headlamps, fit the spacer pin retainer. If there is no adjustment at all on one or both headlamps, check whether the spacer pin (3) has locked in position in the headlamp holder or control element.

**B 12**

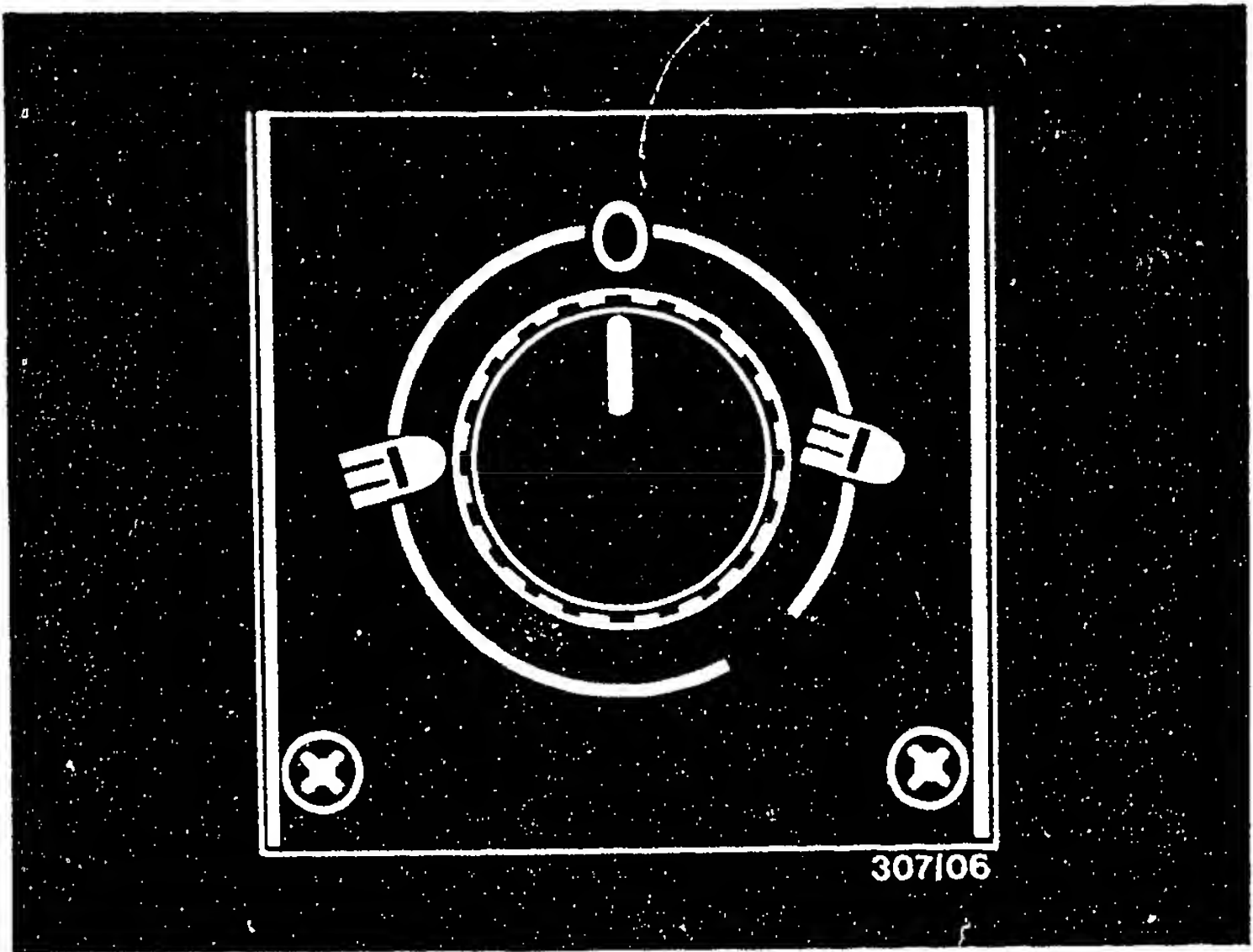
Testing and repair
Saab Scania headlight vertical aim control

**B 13**

Testing and repair
Saab Scania headlight vertical aim control



Test step 5		
Operation	Reading	Testing
<u>Measuring equipment:</u> Headlight aiming device 0 681 130 .. 0 684 100 ..	On headlight aiming device: Light/dark boundary with 13 cm inclination	<u>Component:</u> Headlamp
<u>Operation in vehicle:</u> Manual adjustment device to position (lock-in position - top illustration)		<u>Operation:</u> Basic setting
<u>Setting on headlight aiming device:</u> Set to <u>13 cm</u> inclination		<u>Malfunction:</u> -----



Manual adjustment device

Adjusting screws on headlamp
1 = Horizontal adjustment
2 = Vertical adjustment

Operation in vehicle:

Set headlamp to light/dark boundary (bottom illustration)

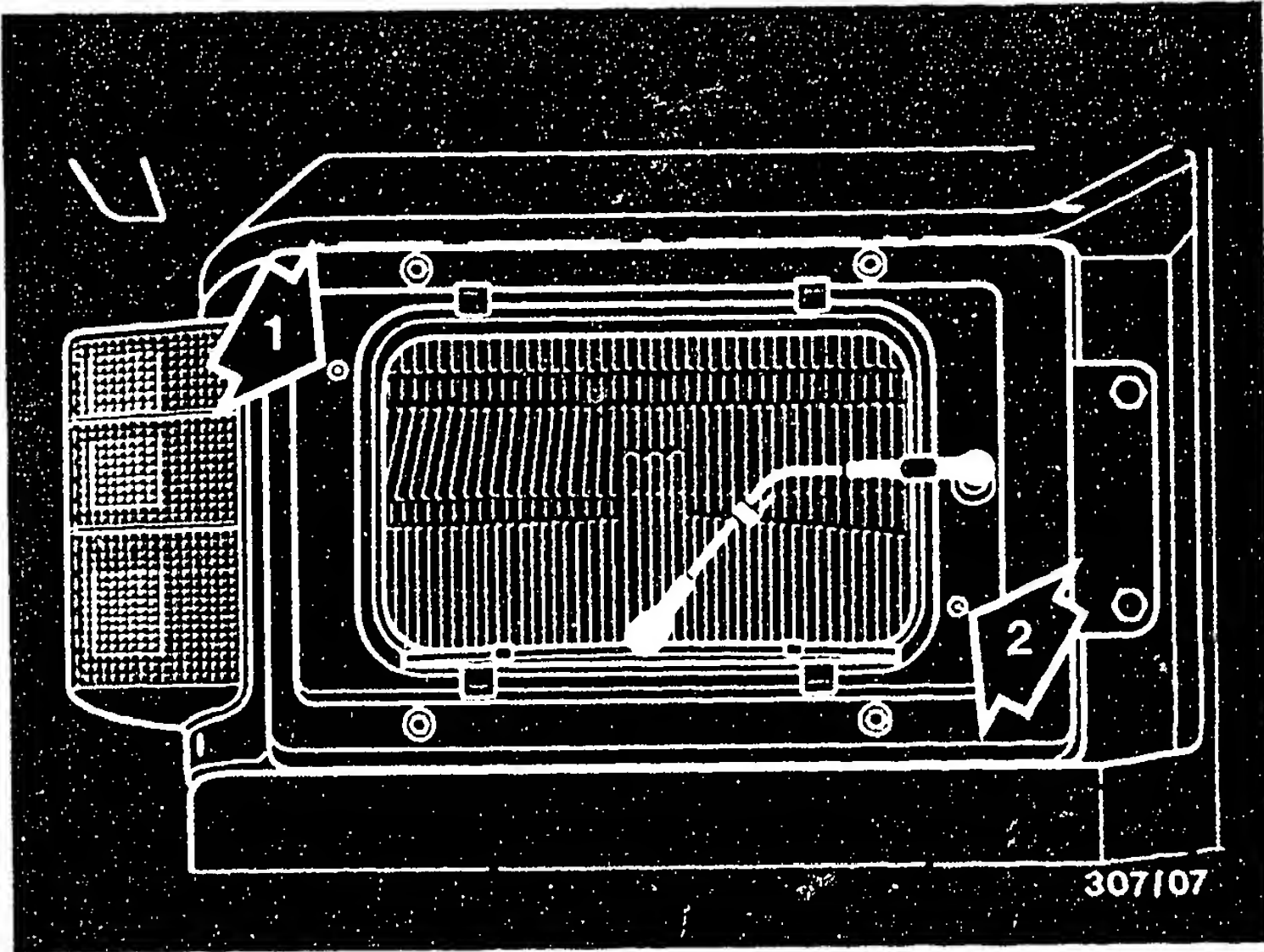


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3. Test equipment	A 6
4. Testing and repair	B 1

